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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/735,585	12/12/2003	James Hamden	020964-002810US	1730
20350	7590	06/20/2005	EXAMINER	
TOWNSEND AND TOWNSEND AND CREW, LLP			PAREKH, NITIN	
TWO EMBARCADERO CENTER			ART UNIT	
EIGHTH FLOOR			PAPER NUMBER	
SAN FRANCISCO, CA 94111-3834			2811	

DATE MAILED: 06/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/735,585

Applicant(s)

HARDEN ET AL.

Examiner

Nitin Parekh

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 April 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 5-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 5-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12-12-03 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 5 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Pritchard et al. (US Pat. 5479050).

Regarding claims 1, 5 and 8, Pritchard et al. disclose a package for a semiconductor device comprising:

- a semiconductor die/an integrated circuit (IC) die (33 in Fig. 2 and 3) having a laterally conducting structure and a ground contact (not numerically referenced- see ground wires 24/25 connecting the contact sites on the die in Fig. 2 and 3; Col. 2, lines 13 and 44) on an upper surface, and
- a leadframe (20 in Fig. 2 and 3) comprising:
 - o a die mount pad (DMP-21 in Fig. 2 and 3) in contact with a lower surface of the die,
 - o a plurality of lead fingers/leads (see 27 in Fig. 2) being separated from the diepad including a total of 12 leads (see six leads on each right and left

side, three of those on right side starting from a top lead marked as 27

and three of those at a bottom right side in Fig. 2), and

- supplemental pedestal portions/downbond diepad portions (see 23 and 25 on the right and left sides respectively in Fig. 2/3) projecting from a main portion of the DMP and being configured to receive downbond wires (see 24/25 in Fig. 2 and 3) from the respective ground contacts

(Fig. 2 and 3; Fig. 1-3; Col. 1 and 2).

Pritchard et al. further disclose the supplemental DMP portions being positioned between the end/edge of the package and the die in one direction/X-direction and between the lead/first lead (see the third lead from the top lead marked 27 on the right side in Fig. 2) and the second lead (see the third lead from the bottom on the right side in Fig. 2) in another direction/Y-direction in a final structure after conventional final processing of the leadframe package including molding and removal of leadframe strips and dam bars (Fig. 2; Col. 2, lines 19-39). Furthermore, the lead/first lead and the second lead are also separate from the DMP (see Fig. 2 indicating only middle two leads on right and left sides being part of the DMP while all other 12 leads being separate from the DMP).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pritchard et al. (US Pat. 5479050) in view of the admitted prior art (APA).

Regarding claims 6 and 7, Pritchard et al. teach the entire claimed structure as applied to claim 1 above, except the die comprises a power IC and the die being configured to operate with a current of between about 1 and 20 Amps.

The APA teaches packages using conventional IC dice comprising a power IC where the dice are configured to operate with a current of between about 1 and 20 Amps (see specification pages 1, 2 and 4-7).

It would have been obvious to a person of ordinary skill in the art at the time invention was made to incorporate the die comprises a power IC and the die being configured to operate with a current of between about 1 and 20 Amps as taught by the APA so the desired electrical performance requirements can be achieved in Pritchard et al's package.

5. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pritchard et al. (US Pat. 5479050) in view of Tsai (US Pat. 6831352).

Regarding claim 9, Pritchard et al. teach the entire claimed structure as applied to claim 1 above, except the diepad comprising copper.

Tsai teaches leadframe packages comprising a die paddle/die pad support structure where the leadframe/die pad is made of conventional metal such as copper (70/72 in Fig. 3A-3C; Col. 4, lines 60-67).

It would have been obvious to a person of ordinary skill in the art at the time invention was made to incorporate the diepad comprising copper as taught by Tsai so the desired thermal and electrical performance can be achieved in Pritchard et al's package.

Response to Arguments

6. Applicant's arguments filed on 04-14-05 have been fully considered but they are not persuasive.

A. Applicant contends that Pritchard et al. do not disclose the supplemental DMP portion being between the first and second leads which are not integral with the DMP.

However, as explained above, the supplemental DMP is between the two leads (see the third and sixth lead from the top right side marked as 27 in Fig. 2). The

limitations as recited in the claim do not include the features that the first and second leads which are separate from the die pad, are also being located immediately/directly adjacent to the supplemental die pad portion in a given/Y-direction.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nitin Parekh whose telephone number is 571-272-1663. The examiner can normally be reached on 09:00AM-05:30PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lee can be reached on 571-272-1732. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9318.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAN or Public PAG. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAG system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.



NP

NITIN PAREKH

06-16-05

PRIMARY EXAMINER

TECHNOLOGY CENTER 2800